http://www.americanprogress.org/issues/green/news/2013/02/12/52881/going-to-extremes-the-188-billion-price-tag-from-climate-related-extreme-weather/

Going to Extremes: The $188 Billion Price Tag from Climate-Related Extreme Weather

SOURCE: AP/Mel Evans

Rough surf of the Atlantic Ocean breaks over the beach and across Beach Avenue, Monday, October 29, 2012, in Cape May, New Jersey, as high tide and superstorm Sandy begin to arrive.

By Daniel J. Weiss and Jackie Weidman | February 12, 2013

The United States was subjected to many severe climate-related extreme weather over the past two years. In 2011 there were 14 extreme weather events—floods, drought, storms, and wildfires—that each caused at least $1 billion in damage. There were another 11 such disasters in 2012. These extreme weather events reflect part of the unpaid bill from climate change—a tab that will only grow over time.

CAP recently documented the human and economic toll from these devastating events in our

November 2012 report "Heavy Weather: How Climate Destruction Harms Middle- and Lower-Income Americans." Since the release of that report, the National Oceanic and Atmospheric Administration, or NOAA, has updated its list of "billion-dollar"-damage weather events for 2012, bringing the two-year total to 25 incidents.

From 2011 to 2012 these 25 "billion-dollar damage" weather events in the United States are estimated to have caused up to $188 billion in total damage.[1] The two costliest events were the September 2012 drought—the worst drought in half a century, which baked nearly two-thirds of the continental United States—and superstorm Sandy, which battered the northeast coast in late October 2012. The four recently added disastrous weather events were severe tornadoes and thunderstorms.

Here is an update of vital extreme weather event data after the addition of these four events:

- **67 percent** of U.S. counties and 43 states were affected by "billion-dollar damage" extreme weather events in 2011 and 2012.
- **1,107 fatalities** resulted from these 25 extreme weather events in 2011 and 2012.
- **Up to $188 billion in damage** was caused by these severe weather events in 2011 and 2012.
- **$50,346.58** was the average household income in counties declared a disaster due to these weather events—3 percent below the U.S. median household income of $51,914.[2]
- **356 all-time high temperature records** were broken in 2012.
- **34,008 daily high temperature records** were set or tied throughout 2012, compared to just 6,664 daily record lows—a ratio of 5-to-1.
- **19 states** had their warmest year ever in 2012.

TABLE 1

Billion-dollar extreme weather events by category, 2011–2012

Type of extreme weather	Events with damages totaling $1 billion or more	Fatalities	Estimated economic damages (in billions of 2012 dollars)	Estimated damages per household in affected counties (in 2012 dollars)	Estimated median household income of affected counties (in 2012 dollars)	Estimated percent difference between disaster area median household income and U.S. median income
Floods	2	12	$5	$720	$44,547	-14%
Droughts and heat waves	2	181	$90	N/A*	$49,340	-5%
Wildfire**	2	13	$2	$355	$50,410	-3%
Severe thunderstorms, tornadoes, hail and/or wind	14	628	$46	$1,022	$51,443	-1%
Winter storms	1	36	$2	$186	$51,977	0.1%
Tropical storms and hurricanes	4	200	$43	$1,056	$59,155	14%

Note: U.S. median household income: $51,914; median income figures are Census Bureau 2005-2010 average
*Drought primary affects farmers, so damages per household was not calculated.
**Wildfires defined by NOAA as entire seasons costing $1 billion, rather than individual fires. States included incurred at least $50 million in costs from wildfires in 2012.
Sources: National Oceanic and Atmospheric Administration; U.S. Census Bureau; national news outlets

Disaster relief has suddenly become a partisan issue. This became overwhelmingly clear during

recent debates in the Senate and the House of Representatives over the Disaster Relief Appropriations Act (H.R. 152), which provided $50.7 billion in emergency aid for superstorm Sandy victims.[3] The measure was passed by Congress and signed by President Barack Obama on January 29, 2013—an unacceptable *91 days* after the storm devastated the northeast corridor.

Despite passing with support from all but one voting Democrat in the House and Senate, the vast majority of Republicans in each chamber opposed essential aid to hurricane victims. These conservative lawmakers attempted to deny financial assistance to those in need, even after some of them previously requested disaster funding for their own states. All 36 Republican senators who voted against the Sandy aid bill are from states that experienced at least one "billion-dollar damage" extreme weather event in the past two years. In fact, 98 percent of lawmakers in either chamber who voted against the bill—211 of the 216 Republicans—represent states that experienced at least one "billion-dollar damage" extreme weather event in the past two years.

The debate over congressional passage of disaster recovery assistance raises serious concerns about whether Congress can both aid disaster victims in a timely fashion and work to help communities minimize damages from future storms and other extreme weather. In order to help these communities reduce their vulnerability to extreme weather, Rep. Lois Capps (D-CA) and 37 of her colleagues urged President Obama to appoint a blue ribbon panel to develop a a "community resilience fund" dedicated solely to providing the financial and technical assistance to vulnerable communities hit by extreme weather events. Dedicated funding for predisaster mitigation will protect lives, shield middle- and lower-income households from the worst impacts of extreme weather, and save taxpayers money over time.

For more information on this proposal, please see CAP's December 2012 column "An Ounce of Prevention: Increasing Resiliency to Climate-Related Extreme Weather."

Below are descriptions of each of the four weather events in 2012 that were not included in our previous report.

April 12: Tornadoes

Nearly 100 tornadoes touched down across Kansas and other midwest states over a two-day period in mid-April 2012, resulting in six deaths. Extensive damage to schools, hospitals, businesses, and homes was estimated to cost $1.8 billion. Many towns were without power for extended periods of time. Fourteen counties in Kansas were declared disaster areas because of the storms. Households in these disaster-declared counties earn, on average, an annual income of $47,027—9 percent below the U.S. median household income.

April 28: Severe storms

Severe weather in Oklahoma and surrounding states caused at least $4 billion in damage and one confirmed fatality in late April 2012. Storm damage throughout the area was primarily caused by 38 confirmed tornadoes and severe hail. Oklahoma was most heavily impacted—six Oklahoma counties were declared disaster areas in the wake of the storm. Households in the counties that were disaster areas earn, on average, an annual income of $39,638—a staggering 24 percent

below the U.S. median household income.

May 25: Severe storms

Twenty-seven confirmed tornadoes touched down over a broad swath of the United States, including from Oklahoma to New Hampshire. The tornadoes and outburst of severe hail, straight-line winds, and thunderstorms caused one fatality and approximately $2.5 billion in damage. Most of the damage occurred in Oklahoma and the entire state was declared a disaster area. New Hampshire and Vermont also had some disaster-declared counties. Households in these disaster-declared counties earn, on average, an annual income of $45,431—12 percent below the U.S. median household income.

June 29: Derecho

A derecho is a "widespread, long-lived wind storm that is associated with a band of rapidly moving showers or thunderstorms," according to the National Oceanic and Atmospheric Administration. Such a storm ravaged eastern and northeastern states in June 2012. It caused 28 fatalities and ripped through a 700-sqaure-mile swath of the mid-Atlantic region, leaving 3.4 million homes there without power. The storm caused at least $3.8 billion in damage in 215 counties in Maryland, New Jersey, Ohio, West Virginia, Virginia, and Washington, D.C. All were declared disaster areas.

TABLE 2

The high cost of extreme weather

Estimated economic damages from U.S. extreme weather events that cost at least $1 billion, 2011 and 2012

Event rank by economic damages	Event Name	Date	Fatalities	Estimated economic damages in billions of dollars (2012)	Estimated percent difference between disaster area median household income and U.S. median income	States with counties affected by $1 billion+ extreme weather events
1	Drought and Heat Wave (2012)	2012	123	$78.0	-7%	AR, CO, GA, IA, IL, IN, KS, MS, MT, NE, NM, OK, SD, TX, UT, WY
2	Hurricane Sandy	October, 2012	125	$30.0	18%	CT, DC, DE, MA, MD, NC, NJ, NY, RI, VA, VT, WV
3	Drought and Heat Wave (2011)	2011	95	$12.2	-6%	AZ, KS, LA, NM, OK, TX
4	Southeast/Midwest Tornadoes	April 25-28, 2011	321	$10.4	-9%	AL, AR, GA, IL, KY, LA, MO, MS, OH, OK, TN, TX, VA
5	Hurricane Irene	August, 2011	45	$10.0	24%	CT, DC, MA, MD, NC, NJ, NY, RI, VA, VT
6	Midwest Tornadoes (including Joplin)	May 22-27, 2011	177	$9.3	0.4%	AR, GA, IL, IN, KS, KY, MN, MO, OH, OK, PA, TN, TX, VA, WI
7	Midwest/Ohio Valley Tornadoes	April 28, 2012	1	$4.0	-24%	OK
8	Derecho	July, 2012	28	$3.8	6%	DC, MD, NJ, OH, VA, WV
9	Mississippi River flood	May-11	7	$3.1	-18%	AR, LA, MO, MS, TN
10	Southeast/Midwest tornadoes and severe storms	April 4-5, 2011	9	$2.9	-11%	GA, IL, KS, KY, MO, NC, SC, TN
11	Severe tornadoes and storms	May 25, 2012	1	$2.5	-12%	NH, OK, VT
12	Severe tornadoes and storms	April 8-11, 2011	-	$2.2	-13%	AL, IA, KS, NC, OK, SC, TN, TX, WI
13	Severe tornadoes and storms	April 14-16, 2011	38	$2.1	-13%	AL, AR, GA, MS, NC, OK, PA, SC, TX, VA
14	Missouri River flood	Summer, 2011	5	$2.0	-4%	IA, KS, MO, MT, ND, NE, SD
15	Hurricane Isaac	August, 2012	9	$2.0	-10%	AL, FL, LA, MS
16	Groundhog Day blizzard	February 1-3, 2011	36	$1.8	0.1%	IL, MO, NM, OK, WA, WI
17	Severe storms and hail	June 6-7, 13, 2012	-	$1.8	9%	CO, TX, WY
18	Severe tornadoes and storms	April 12, 2012	6	$1.8	-9%	KS
19	Severe tornadoes and storms	March 2-3, 2012	42	$1.5	-7%	AL, GA, FL, OH, IL, IN, KY, MS, SC, TN, VA, WV
20	Severe tornadoes and storms	June 18-22, 2011	3	$1.3	1%	GA, IA, IL, KS, MO, NC, NE, OK, SC, TN, TX
21	Tropical Storm Lee	September, 2011	21	$1.3	18%	AL, CT, GA, LA, MD, MS, NJ, NY, PA, TN, VA
22	Wildfire season*	2012	8	$1.1	9%	CA, CO, ID, MT, NM, UT
23	Wildfire season*	2011	5	$1.0	-6%	AZ, NM, TX
24	Severe tornadoes and storms	July 10-14, 2011	2	$1.0	2%	CO, IA, IL, MI, MN, OH, WY
25	Severe tornadoes and storms	April 3, 2012	-	$1.0	-1%	TX
Total	25 events	-	1,107	$188	-3%	43 States

Note: U.S. Median household Income: $51,914; Median income figures are Census Bureau 2005-2010 average
*Wildfires defined by NOAA as entire seasons costing $1 billion, rather than individual fires. States included incurred at least $50 million in costs from wildfires
**2012 damage figures are estimates from Dr. Jeff Masters' Weather Underground Blog; Official NOAA figures won't be out until mid-2013
Sources: National Oceanic and Atmospheric Administration; U.S. Census Bureau

These events, along with the seven other "billion-dollar" weather events in 2012, made it the

second-most-extreme weather year on record, according to the U.S. Climate Extremes Index.

NASA climatologist Gavin Schmidt says that when it comes to higher temperatures and extreme weather, "what matters is this decade is warmer than the last decade, and that decade was warmer than the decade before. The planet is warming. The reason is because we are pumping increasing amounts of carbon dioxide into the atmosphere."

The U.S. National Climate Assessment draft released in January 2013 indicates that the effects of climate change will continue to threaten the health and vitality of our communities as extreme weather becomes more frequent and/or severe. One of the report's key findings is that U.S. coastal communities are particularly vulnerable to sea-level rise, storms, floods, and subsequent erosion. And scientists predict that precipitation events across the United States are likely to be heavier. These risks pose serious threats to our electricity grid, infrastructure, clean water, and sewage treatment system in the most affected places.

The climate-related extreme weather events of the past several years have become the new normal. We must act now to reduce the industrial carbon pollution responsible for climate change and help communities become more resilient to the coming storms, floods, droughts, heat waves, and wildfires.

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Methodology

This Center for American Progress analysis compiled data from multiple sources. Extreme weather events data were from the National Oceanic and Atmospheric Administration's National Climatic Data Center, or NCDC. Counties affected by each event were compiled from the Federal Emergency Management Agency's Declared Disasters database.

In order to assess income levels for the most affected counties, we used median household income (2006–2010) data and number of households (2006–2010) data from the U.S. Census Bureau's State and County QuickFacts. The 2006–2010 values are an average over the five-year period. We compared the percent difference between the average annual median household incomes for the affected counties in each weather event to the U.S. median—$51,914. We accounted for the population of each county when calculating these values. The cost per household was calculated by taking the cost of the event divided by the total number of households for each event.

Endnotes

[1] The National Oceanic and Atmospheric Administration will release final 2013 disaster cost estimates in mid-2013.

[2] U.S. median income figures are based on the 2005-2010 Census Bureau average.

[3] This was the second installment of Sandy aid. The first installment of $9.7 billion was passed on January 1, 2013.